

REMARKS

Claims 21-26 have been cancelled so that claims 1-20 and 27 are now in the application.

The Examiner objected to the drawings on the basis that the reference character (126) has been used to designate both the third insulation layer and the pole piece layer. The replacement sheet of Fig. 8 is forwarded herewith changing the reference character "126" to --127-- for the first pole piece layer (P1). The specification has been amended to properly refer to the reference characters.

Claims 12-20 have been allowed. The Examiner indicated the allowability of claims 3, 5, 8, 10, 11 and 27 if rewritten in independent form including all of the limitations of the base claim and any intervening claims. These claims have been so amended and should now be in condition for allowance.

Claims 1 and 6 were rejected under 35 USC 102(e) as being anticipated by Hossain. Claim 1 is distinguished over Hossain by reciting:

"first and second pole pieces including first and second pole tips separated by a gap layer; and
the first and second pole pieces each including a body-centered cubic (BCC) nickel-iron alloy layer containing from 64% to 81% iron by weight."

This structure is exemplified in Fig. 1 wherein each of the first and second pole pieces 42 and 38 are a body centered cubic (BCC) nickel-iron alloy layer containing from 64% to 81% iron by weight. In contrast, Hossain teaches an iron content no more than 60%. This is supported by column 5, lines 20-24 of Hossain which state:

". . . . Primarily iron NiFe is defined in the present invention to be an alloy having a greater atomic concentration of iron than nickel, such as $\text{Ni}_{0.45}\text{Fe}_{0.55}$, while a range of between about 50% iron to 60% iron is generally preferred. . . ."

In support of his rejection the Examiner states:

". . . . differences in concentration are not patentable because it is not inventive to discover the optimum or workable ranges by routine experimentation, see *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 CPA 1955))."

The Applicants acknowledge the law as stated by *In re Aller*, however, the Applicants maintain that one skilled in the art would not come up with Applicants' invention by routine experimentation for

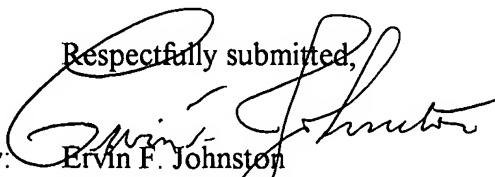
several reasons, namely: (1) the claimed range 64% to 81% of iron in the nickel-iron alloy achieves unexpected results relative to the prior art range of 50% to 60% as taught by Hossain (*In re Woodruff*, 919 F.2d 1575, 16 USPQ 2d 1934 (Fed. Cir. 1990)); and (2) Applicants' invention is contrary to accepted wisdom in the art (*In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986)). This was addressed in Applicants' specification, page 4, line 27 to page 5, line 10 wherein it is stated:

"Continuing increases in media storage bit densities require continuing improvements in write head performance. It would be desirable to improve the saturation flux density (BS) of the simpler nickel-iron alloy pole layers by adding iron to the alloy to provide more than 62% iron by weight. The prior art generally teaches away from this idea because alloys with higher iron concentrations are known to have too much coercivity ($H_C = 250$ A/m or more) and thus cannot handle the high frequencies required to write high-density data to a high- H_C medium. As a result of this widely-held belief, the pole material of choice in the art is currently nickel-iron alloy with about 55% iron by weight ($Ni_{45}Fe_{55}$). But the saturation flux density of this material is limited to about 1.75 T (17.5 kG) at best. Newer high- H_C data recording media are pushing the flux limits for heads using this material. The few known alternative low- H_C materials with higher B_s are substantially more difficult to fabricate into acceptable pole structures."

The Applicants achieved unexpected results by providing a material which enables a write head to handle more flux (higher B_s) while maintaining a low coercivity (H_C). The art is crowded with various materials for write poles which do not suggest employing Applicants' range. The Applicants maintain that their discovery has made an unexpected advance in the art which is contrary to conventional wisdom in the art.

The undersigned has a new phone number which is **808-661-1197**.

Should the Examiner have any questions regarding this Amendment he is respectfully requested to contact the undersigned.

Respectfully submitted,

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